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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/23426

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : B01L 3/00

US CL : 422/102,129,131

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 422/102,129,131

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ---	US 5,589,136 A (NORTHROP et al) 31 December 1996 (31.12.1996), entire document.	1,3,4,6-8,16,18,20,23
Y		2,5,9-15,17,19,22,24-43
X ---	US 6,309,889 B1 (CUTLER et al) 30 October 2001 (30.10.2001), entire document.	1,6-8,16,18,20,21,23,25,29-31
Y		2-5,9-15,17,19,22,24,26-28,32-43
X ---	US 5,849,208 A (HAYES et al) 15 December 1998 (15.12.1998), entire document.	1,3,4,6,7,13,14,16,18,20,21,23
Y		2,5,8-12,15,17,19,22,24-43

☒ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

01 December 2003 (01.12.2003)

Date of mailing of the international search report

23 DEC 2003

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## C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6,306,658 B1 (TURNER et al) 23 October 2001 (23.10.2001), entire document.	25
Y,P	US 6,436,720 B1 (OBERBECK et al) 20 August 2002 (20.08.2002), entire document.	25
Y,P	US 6,576,196 B1 (AKPORIAYE et al) 10 June 2003 (10.06.2003), entire document.	25
Y,P	US 6,485,690 B1 (PFOST et al) 26 November 2002 (26.11.2002), entire document.	25
X	US 4,702,888 A (BORGIALLI) 27 October 1987 (27.10.1987), entire document.	1,5,12-14,20,21 2-4,6-11,15-19,22-40
A	US 5,304,487 A (WILDING et al) 19 April 1994 (19.04.1994), entire document.	1-40
A,E	US 6,558,625 B1 (DEVES et al) 6 May 2003 (06.05.2003), entire document.	1-40
A,E	US 6,599,736 B2 (MCCASKILL et al) 29 July 2003 (29.07.2003), entire document.	1-40